

IN THE CLAIMS:

Claims 1-36 (Cancelled).

Claim 37. (New) A coreless transformer for passing a low frequency band waveform between about 10kHz and 20MHz, which transformer comprises a primary circuit and a secondary circuit having a number of turns such that said transformer comprises a plurality of layers, each layer having all primary or all secondary conductors, there being a combination of said number of turns and a number layers sufficient to obtain a transformer action for passing said waveform from said primary circuit to said secondary circuit over said frequency band.

Claim 38. (New) A coreless transformer as claimed in claim 37, wherein said layer extends radially outwardly from a centre of said transformer.

Claim 39. (New) A coreless transformer as claimed in claim 37, wherein layers of said primary circuit are adjacent one another to form a primary circuit stack, and layers of said secondary circuit are adjacent one another to form a secondary circuit stack, the arrangement being such that said primary circuit stack and said secondary circuit stack are stacked one next to the other to facilitate said transformer action.

Claim 40. (New) A coreless transformer as claimed in claim 38, wherein layers of said primary circuit are interleaved with layers of said secondary circuit, the arrangement being such that there are alternating layers of said primary and secondary circuits.

Claim 41. (New) A coreless transformer as claimed in claim 40, wherein said alternating layers comprise single layers of said primary and secondary circuits.

Claim 42. (New) A coreless transformer as claimed in claim 37, wherein a separation between conductors in each layer is between about 0.02mm and 0.075mm.

Claim 43. (New) A coreless transformer as claimed claim 37, wherein the separation between each layers is between about 0.02mm and 0.2mm.

Claim 44. (New) A coreless transformer as claimed in claim 37, wherein there are at least ten layers.

Claim 45. (New) An electrical circuit comprising a coreless transformer according to claim 37.

Claim 46. (New) A digital subscriber line (DSL) modem comprising a line interface transformer having a primary circuit for coupling to a transmission line and a secondary circuit for outputting a signal transmitted over said transmission line, each circuit being formed of a continuous electrically conductive material and in which the primary circuit defines a first plane and the secondary circuit defines a second plane, said first and second planes substantially parallel to one another.

Claim 47. (New) A DSL modem as claimed in claim 46, wherein said first plane is spaced-apart from said second plane.

Claim 48. (New) A DSL modem as claimed in claim 46, wherein said line interface transformer comprises alternating layers of said primary circuit and said secondary circuit.

Claim 49. (New) A DSL modem as claimed in claim 46, wherein there are a plurality of first and second planes each plane forming a layer and wherein said primary circuit comprises a plurality of substantially parallel layers and said secondary circuit comprises a plurality of substantially parallel layers.

Claim 50. (New) A DSL modem as claimed in claim 49, layers of said primary circuit adjacent one another and layers of said secondary circuit adjacent one another, said primary and secondary circuits separated by a gap.

Claim 51. (New) A DSL modem as claimed in claim 50, wherein said primary circuit layers form a primary circuit stack and said secondary circuit layers form a secondary circuit stack, said primary circuit stack and said secondary circuit stacked one adjacent the other.

Claim 52. (New) A DSL modem as claimed in claim 50, wherein layers of said primary circuit are interleaved with layers of said secondary circuit.

Claim 53. (New) A DSL modem as claimed in claim 49, wherein the separation between said layers is not more than 0.5mm.

Claim 54. (New) A DSL modem as claimed in claim 49, wherein layers of said primary circuit and/or said secondary circuit are connected in series or parallel.

Claim 55. (New) A DSL modem as claimed in claim 49, further comprising at least ten layers of said plurality of substantially parallel layers of said primary circuit, and at least ten layers of said plurality of substantially parallel layers of said secondary circuit.

Claim 56. (New) A DSL modem as claimed in claim 46, wherein a number of turns of each circuit is at least ten.

Claim 57. (New) A DSL modem as claimed in claim 46, wherein said primary circuit and said secondary circuit are in the form substantially parallel spirals of the conductive material defining

substantially different planes.

Claim 58. (New) A DSL modem as claimed in claim 46, having an aspect ratio defined as diameter to width of 5:1 or more.

Claim 59. (New) A DSL modem as claimed in claim 46, wherein said line interface transformer does not comprise ferromagnetic core.

Claim 60. (New) For use in a DSL modem, a line interface transformer having any of the line interface transformer features of claim 46.

Claim 61. (New) A method of transmitting electronic data over a transmission line, which method comprises the steps of placing said electronic data on said transmission line using a line interface transformer as claimed in claim 60.

Claim 62. (New) A method of manufacturing DSL modem, which method comprises the step of inserting a line interface transformer according to claim 60 and electrically connecting said transformer thereto.